FIG.1A

9 CGGGGAGGAATATGCTGTGGAGCTCCTCTGCCATATAAACAAAAAGAGGAAATCTTTCAA

300 240 ACCAGAAACGTGAGGGTGGATGAGGAGCAAAAACTTTATACGGATGATGAGATGATA 420 120 480 AAAGCCTTGCTACATTGGAATCTGTCTTCCAAGAGCTGGGGAAACTGACAGGACCAAACA 360 100 80 ENVOKFPSPEMIRALE60 ACATGGCTGAAGCAAAGACCCCACTGGCTTGGAGCAGCCCTGTCTCTTTATTCCCTTTAATTT لترا **AGTACATAGAAAACCCCTTTAAACGCACAAATGAAATAGTGGAGGAACAATATACTCCTC** CAGACCTCAGGTTGGAAAATGTCCCAAAAGTTTCCCAGGTCCTGAAATGATCAGGGCTTTGG ENPFKRTNEIVEEQYTPO I Q. Q Z TCTACAAGGCTAATAACATTGCCTATGAAGATGTGGTCGGGGGAGAGACTGGAACCCCAG |--| [L] N N 口 LISGAEAASFORNOLLOK 2 М EOKLYTDDE SVFQELGKLTG 3 SLI 山 G H W L G A A L G > > 团 O K R E R M D E \succ Ø AKT FI 戸 2 DLRL L A T Z (F) Ø H X

FIG.1B

160 009 240 099 840 260 900 096 Ç GAAAAAATGAACAAATCAACGATGAGATGAAACGCTCAGGGCAGCTTGGCATCCAGGAAG TAGAGGAGAAATAGAGAGTCAAACCCAGGAAGAGGTGAGAGACAGCAAAGAGAATATAG (F.) 回 **AAGATCTTCGGAAAGAGAGTAAAGACCAACTCTCAGATGATGTCTCCAAAGTAATTGCCT** ATTTGAAAAGGTTAGTAAATGCTGCAGGAAGTGGGAGGTTACAGAATGGGCAAAATGGGG AAAGGGCCACCAGGCTTTTTGAGAAACCTCTTGATTCTCAGTCTATTTATCAGCTGATTG AAATCTCAAGGAATTTACAGATACCCCCAGAAGACTTAATTGAGATGCTCAAAACTGGGG AGAAGCCGAATGGATCAGTGGAACCGGAGCGGGAGCTTGACCTTCCTGTTGACCTAGATG ACATCTCAGAGGCTGACTTAGACCATCCAGACCTGTTCCAAAATAGGATGCTCTCCAAGA S Н (F) ᠐ ITOXISO Ŋ 又 Ø N O Z LDLPVDL EH Ϊ́Λ ഗ L K 団 H G Н × L Q N G X Σ ᅱ S Σ ഗ 以 EDILE ж О 0 0 Λ Ω z Ø > RS DOLSD S G R ഗ لعا r 고 L D % घ ᆸ Z 对 Ω Д A G Ø ם M Д 区 ĿJ щ H <u></u> O A [F] 尀 Ω I Q I Z Ś Z S R L F > Ц 1 0 ഗ L V [교] · 団 z 又 ෆ K 04 ₽ X ы × Z M K L K ഗ [고] Z Н

FIG.1C

GTGGCTACCCTAAAACACCTGGTCGTGCTGGGACTGAGGCCCTACCAGACGGGCTCAGTG 1020 1080 340 TTGAGGATATTTTAAATCTTTTAGGGATGGAGAGTGCAGCAAATCAGAAACGTCGTATT لعنا S × Н S G H Ω 区 рı Ø Н Z A K 団 A H လ် Ŋ ഥ A Σ ĸ Ŋ Ŋ Н Д Ļ <u>-</u> Z 又 口 م Н **>**-IJ ГJ

1200 1260 TTAAATACCCTGAGATCATTAATTCAAACCAAGTGAAGCGAGTTCCTGGTCAAGGCTCAT 1320 CTGAAGATGACCTGCAGGAAGAGGAACAAATTGAGCAGGCCATCAAAGAGCATTTGAATC 1380 380 360 420 440 TICCCAATCCATATAACCAGGAGAAAGTTCTGCCAAGGCTCCCTTATGGTGCTGGAAGAT CATATGAAAACCTGAACGACAAGGATCAAGAATTAGGTGAGTACTTGGCCAGGATGCTAG ഗ ഗ O R Q M A N T W 2 ß Z P Y N Q E K V L P R L P Y G A G R V P G Q G 出 田 H V E N Y L A 띠 × Н 印 A N O WIP E ... Ø 띡 Н LNDKDQ L P K A A S Ø Ŀ Z [L] Н H |--| Ø 띠 니 Ø Z Д \succ Z ß 더 ГĪ

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FIG.11

1620 AAGGCAGCTCTCAGGAGACTGACAAGCTGGCCCCGGTGAGCAAAAGGTTCCCTGTGGGGC 1440 CCCCGAAGAATGATGATACCCCAAATAGGCAGTACTGGGATGAAGATCTGTTAATGAAAG 1500 TGCTGGAATACCTCAATCAAGAAAAGGCAGAAAAGGGAAGGGAGCATATTGCTAAGAGAG 1560 500 K N D D T P N R Q Y W D E D L L M K V 480 CAATGGAAAATATGTAAGCTGCTTTCATTAATTACCCTACTTTCATTCCTCCCACCCCAA E Y L N Q E K A E K G R E H I A K R A SQETDKLAPVSKRFPVG Z ഗ

TIAAATGATGTACAGGCAGATGAAACCAGGTCACTGGGGAGTCTGCTTCATTTCCTCTGA 1740

GCAAATCCCAACATTTCTCTTCAGTGTGTTGACTTCTATCTGTTAACACTGTAATATCT

GCTGTTATCTTGTGTATGTGTAAATGTTATGACTCCTTGATAAAAAATTTATTA 1800

TGTCCATTATTCAAGAAAGATATCTATGACTGTGTTTAATAGTATATCTAATGGCTGTGG 1860

FIG.1E

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FIG.2A

09 CGGGGGAGGAATATGCTGTGGAGCTCCTCTGCCATATAAACAAAAAGAGGAAATCTTTCAA 120 360 420 CAGACCTCAGGTTGGAAAATGTCCCAAAAGTTTCCCAGTCCTGAAATGATCAGGGCTTTGG 240 09 80 P 40 ACATGGCTGAAGCAAAGACCCACTGGCTTGGAGCAGCCCTGTCTTATTTAATTT D L R L E N V Q K F P S P E M I R A L E S CCCTCCTATGTATGAAGAGAATTCCAGGGATAACCCCTTTAAACGCACAAATGAAATAGT GGAGGAACAATATACTCCTCAAAGCCTTGCTACATTGGAATCTGTCTTCCAAGAGCTGGG Z WLGAALSLIPLI 뙤 YIENLROQAHKKESLSTC SGAEAASFQRNQLLQK ·L ·L C M K R I · P G I T P L N A Q M K K T H A 떠 A П

480 GAAACTGACAGGACCAAACAACCAGAAACGTGAGAGGATGGGATGAGGAGCAAAAACTTTA

FIG.2B

TACGGATGATGATATCTACAAGGCTAATAACATTGCCTATGAAGATGTGGTCGG		_
GGGAGAAGACTGGAACCCAGTAGAGAAAATAGAGAGTTCAAACCCCAGGAAGAGTTGAG	000	_
AGACAGCAAAGAAATATAGGAAAAAATGAACAAATCAACGATGAGATGAAACGCTCAGG	99 5	
GCAGCTTGGCATCCAGGAAGAAGATCTTCGGAAAGAGAGTAAAGACCAACTCTCAGATGA	720	$\overline{}$
TGTCTCCAAAGTAATTGCCTATTTGAAAAGGTTAGTAAATGCTGCAGGAAGTGGGAGGTT	780	
ACAGAATGGGCAAAAGGGCCACCAGGCTTTTGAGAAACCTCTTGATTCTCA	840	\sim
GTCTATTTATCAGCTGATTGAAATCTCAAGGAATTTTACAGATACCCCCAGAAGACTTAAT	006	_
TGAGATGCTCAAAACTGGGAGAAGCCGAATGGATCAGTGGAACCGGAGCGGGGGGCTTGA	096 1	_

FIG.2C

1020	1080
CCTTCCTGTTGACCTAGATGACATCTCAGAGGCTGACTTAGACCATCCAGACCTGTTCCA 1020	AAATAGGATGCTCCCAAGAGTGGCTACCCTAAAACACCTGGTCGTGGTGGGACTGAGGC 1080

1140	1200
CCTACCAGACGGGCTCAGTGTTGAGGATATTTTAAATCTTTTAGGGATGGAGAGTGCAGC 1140	AAATCAGAAAACGTCGTATTTTCCCAATCCATATAACCAGGAGAAAGTTCTGCCAAGGCT

1260
CCCTTATGGTGCTGGAAGATCTAGATCGAACCAGCTTCCCAAAGCTGCCTGGATTCCACA

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FIG.2I

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TGATAAAAAATTTAT	

FIG.2E

AGTATATCTAATGGCTGTGGCATTGTTGATGCTCACATATGATAAAAAGTGTCCTATAA 1980

TICTATIGAAAGITITIAAIATITIATIGAATIATITIGITACIGICGGIAGCGTTITGIG 2040

GAGTACTGGACCAAAAAAATAAAGCATTATAAATATA

2077

FIG.3A

CGGGGGGGAGTATGCTGTGGAGCTCCTCTGCCATATAAACAAAAAGAGAAATCTTTCAA

180 240 300 360 ACATGGCTGAAGCAAAGACCCACTGGCTTGGAGCAGCCCTGTCTCTTAATTT 120 100 480 9 CAGACCTCAGGTTGGAAAATGTCCAAAAGTTTCCCAGTCCTGAAATGATCAGGGCTTTGG AGTACATAGAAAACCTCCGACAACAAGCTCATAAGGAAGAAAGCAGCCCAGATTATAATC CCTACCAAGGTGTCTCTCTCCCCTTCAGCAAAAAAAAATGGCGATGAAAGCCACTTGC CCGAGAGGGATTCACTGAGTGAAGAGACTGGATGAGAATAATACTCGAAGCTTTGAGAC AGGCTGAAAATGAGCCTCAGTCTGCACCAAAAGAAAATAAGCCCTATGCTTGAATTCAG 团 D L R L E N V Q K F P S P E M I R A L SHT AKTHWLGAALSLIPLI EDWMRIILEALR E S S P D Y N LISGAEAASFORNOLLOKE ß Z Н ŒΊ K YQGVSVPLQQKENGD × Д 又 YIENLRQQAHKE Z Œ × М K SISE ഗ 0 Ы E) M A E R D Z 四. 团

FIG.3B

780 540 180 099 200 720 220 240 840 260 900 160 280 096 009 300 又 Ω **ATGAGGAGCAAAAACTTTATACGGATGATGAAGATGATATCTACAAGGCTAATAACATTG** AACGCACAAATGAAATAGTGGAGGAACAATATATACTCCTCAAAGCCTTGCTACATTGGAAT CTGTCTTCCAAGAGCTGGGGAAACTGACAGGACCAAACAACAGAAACGTGAGAGGATGG AGCTTAAGCACATGCAATTCCCTCTATGTATGAAGAGAATTCCAGGGATAACCCCTTTA S I CCTATGAAGATGTGGGGGGGGAGAAGACTGGAACCCCAGTAGAGGAGAAAATAGAGAGTC AAACCCAGGAAGAGGTGAGAGACAGCAAAGAGAGATATAGGAAAAAATGAACAAATCAACG ATGAGATGAAACGCTCAGGCAGCTTGGCATCCAGGAAGAGATCTTCGGAAAGAGAGTA Σ 면 대 S Z 2 لتا ഗ Н 24 2 T Ø 团 μ ĿJ ഥ A T Z ГI Z М Н 区 M X Ø × 3 又 S О Ж Y 囧 Ø 民 Z ᆸ Ø N I G K വ ഥ Ø Z I Q Z H > 띠 പ Д ഥ ᄓ Z 团 Ω Т М [±] \succ Z Ø Z O **对** 四 X **S** Ω ы G Н Ω Ω Σ H C Ω X L S М M 드 Ŋ Н ۵ G Д E⊸ Σ 团 O ĸ ပ Ü ⊁ Ω ഥ > G > ᅱ > Ø Н H Σ S ĿЛ > 4 띡 团 Σ × K Ω Ø Ø ليرا 田 Z M X × Ø لعا [L] [--1 山 Z Σ 区 > K F × H 回

FIG.3C

1200 1260 1380 AGAAACCTCTTGATTCTCAGTCTATTTATCAGCTGATTGAAATCTCAAGGAATTTACAGA 1140 1320 380 360 400 340 440 CTGCAGGAAGTGGGAGGTTACAGAATGGGCAAAATGGGGAAAGGGGCCACCAGGCTTTTTG TACCCCCAGAAGACTTAATTGAGATGCTCAAAACTGGGGAGAAGCCGAATGGATCAGTGG AACCGGAGCGGGAGCTTGACCTTCCTGTTGACCTAGATGACATCTCAGAGGCTGACTTAG 띠 ACCATCCAGACCTGTTCCAAAATAGGATGCTCTCCAAGAGTGGCTACCCTAAAACACCTG AAGACCAACTCTCAGATGATGTCTCCAAAGTAATTGCCTATTTGAAAAGGTTAGTAAATG GTCGTGCTGGGACTGAGGCCCCTACCAGACGGGCTCAGTGTTGAGGATATTTTAAATCTTT Н TAGGGATGGAGGTGCAGCAAATCAGAAAACGTCGTATTTTCCCAAGCAAATCCCAACAT П ᆸ Ø > Д لعا Z H Ω N L <u>-</u>--ഗ D I L N Щ > A × K Ġ 口 ĸ Z 더 ф **E-**-1 ĸ O S A а ß χ 9 又 × × LKTGEK 드 П 田 I D O I D D I אט > 四 S × لتا G × വ IYOLI K Н ß Z Н ഗ R M L ധ Ø > H ტ Ω X × ים Σ Z ഗ Ø ഗ Ы Ø 떠 Z > Z I. D ¥ Н Ø Ø I I O ¥ ſτι ĸ Ŋ ĿЛ Ω K Н G M E S ഗ ᆸ Ω 团 2 ഗ U Н ĿĴ Д Д . K Ø G M Σ. × Ω ٦ K Д 工 Ċ

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1500	1560	1620	1680	1740	1800
TTCTCTTCAGTGTGTTGACTTCTTTAACACTGTAATATCTTTAAATGATGTACA 1500 L F S V L T S I L L T L *	GGCAGATGAAACCAGGTCACTGGGGAGTCTGCTTCATTTCCTCTGAGCTGTTATCTTGTG 1560	TATGGATATGTGTAATGTTATGACTCCTTGATAAAAATTTATTATGTCCATTATTCAA 1620	GAAAGATATCTATGACTGTGTTTAATAGTATGTTGGCTGTGGCATTGTTGATGCTC 1680	ACATATGATAAAAAGTGTCCTATAATTCTATTGAAAGTTTTTAATATTTTGAATTAT 1740	TTTGTTACTGTCTGTAGCGTTTTTGTGGAGTACTGGACCAAAAAAATAAAGCATTATAAAT 1800

FIG.4A

SGIIVI CGGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAA GAGGAAATCTTTCAA SGIIV2 CGGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA SGIIV3 CGGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA CGGGGAGGAATATGC TGTGGAGCTCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA SGII

61

120

SGIIV1 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT SGIIV2 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT SGIIV3 ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT

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FIG.4B

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TCCTCATCTCTGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC SGIIV1 TCCTCATCTCTGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC TCCTCATCTCGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC SGIIV2 SGIIV3

TCCTCATCTCTGGGG CTGAAGCAGCTTCAT TTCAGAGAAACCAGC TGCTTCAGAAAGAAC SGII

181

CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG CAGACCTCAGGTTGG AAAATGTCCAAAAGT TTCCCAGTCCTGAAA TGATCAGGGCTTTGG SGIIV2 SGIIV3 SGIIV1 SGII

300			CC TCCGACAACAAGCTC ATAAGGAAGAAAGCA GCCCAGATTATAATC	TCCGACAACAAGCTC ATAAGGAAGAAAGCA GCCCAGATTATAATC	360			CTGTCCCCCTTCAGC AAAAGAAATGGCG ATGAAAGCCACTTGC	CTGTCCCCCTTCAGC AAAAAGAAATGGCG ATGAAAGCCACTTGC
		ATAAG	ATAAGGAAGAAAGCA	ATAAGGAAGAAAGCA				AAAAAGAAAATGGCG	AAAAAGAAAATGGCG
		CC TCCGACAACAAGCTC ATAAG-	TCCGACAACAAGCTC	TCCGACAACAAGCTC				CTGTCCCCTTCAGC	CTGTCCCCCTTCAGC
241	AGTACATAGAAAACC	SGIIV2 AGTACATAGAAAACC	SGIIV3 AGTACATAGAAAACC	AGTACATAGAAAACC	301			SGIIV3 CCTACCAAGGTGTCT	CCTACCAAGGTGTCT
	SGIIV1	SGIIV2	SGIIV3	SGII		SGIIV1	SGIIV2	SGIIV3	SGII

420			CGAAGCTTTGAGAC	rcgaagctttgagac
			GGATGAGAATAATAC T	GGATGAGAATAATAC
361			CCGAGAGGGATTCAC TGAGTGAAGAGACT GGATGAGAATAATAC TCGAAGCTTTGAGAC	CCGAGAGGGATTCAC TGAGTGAAGACT GGATGAGAATAATAC TCGAAGCTTTGAGAC
	SGIIVI	SGIIV2	SGIIV3	SGII

	421			480
SGIIV1				
SGIIV2				
SGIIV3	AGGCTGAAAATGAGC	CTCAGTCTGCACCAA	CTCAGTCTGCACCAA AAGAAATAAGCCCT ATGCCTTGAATTCAG	ATGCCTTGAATTCAG
SGII	AGGCTGAAAATGAGC	CTCAGTCTGCACCAA AAGAAATAAGCCCT ATGCCTTGAATTCAG	AAGAAATAAGCCCT	ATGCCTTGAATTCAG

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SGIIV1 AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT SGIIV2 AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT SGIIV3 AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT AACGCACAAATGAAA TAGTGGAGGAACAAT ATACTCCTCAAAGCC TTGCTACATTGGAAT

SGIIV1 CTGTCTTCCAAGAGC TGGGGAAACTGACAG GACCAAACAACCAGA AACGTGAGAGGATGG SGIIV2 CTGTCTTCCAAGAGC TGGGGAAACTGACAG GACCAAACAACCAGA AACGTGAGAGGATGG SGIIV3 CTGTCTTCCAAGAGC TGGGGAAACTGACAG GACCAAACAACCAGA AACGTGAGAGGATGG CTGTCTTCCAAGAGC TGGGGAAACTGACAG GACCAAACAACCAGA AACGTGAGAGGATGG 661

FIG.4G

7.21

SGIIV1 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG SGIIV2 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG

SGIIV3 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG

ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG SGII 840

781

SGIIV1 CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC SGIIV2 CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGATC

SGIIV3 CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC

CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC SGII

841

900

SGIIVI AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG SGIIV3 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG SGIIV2 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG SGII

901

ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAGAGATC TTCGGAAAGAGAGTA SGIIV1 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAGATC TTCGGAAAGAGAGTA ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAGATC TTCGGAAAGAGAGTA ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGTA SGIIV2 SGIIV3 SGII

•

961

SGIIVI AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG SGIIV2 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG SGIIV3 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG

1021

SGIIV1 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAAGGG CCACCAGGCTTTTTG CIGCAGGAAGIGGGA GGTTACAGAAIGGGC AAAAIGGGGAAAGGG CCACCAGGCTTTTIG SGIIV2

SGIIV3 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAAGGG CCACCAGGCTTTTTG

CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAAGGG CCACCAGGCTTTTTG

1081

1140

SGIIVI AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA SGIIV2 AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA SGIIV3 AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAATCT CAAGGAATTTACAGA SGII 1200 1141

SGIIV3 TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG SGIIVI TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG SGIIV2 SGII

1201

SGIIV1 AACCGGAGCGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG

SGIIV2 AACCGGAGCGGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG

AACCGGAGCGGGAGC TIGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG SGIIV3

AACCGGAGCGGAGC TTGACCTTCCTGTTG ACCTAGATGACATCT CAGAGGCTGACTTAG SGII 1261

SGIIV1 ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG SGIIV2 ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG

ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG SGIIV3 ACCATCCAGACCTGT TCCAAAATAGGATGC TCTCCAAGAGTGGCT ACCCTAAAACACCTG SGII

1321

1380

SGIIV1 GTCGTGCTGGGACTG AGGCCCTACCAGACG GGCTCAGTGTTGAGG ATATTTTAAATCTTT SGIIV2 GTCGTGCTGGGACTG AGGCCCTACCAGACG GGCTCAGTGTTGAGG ATATTTTAAATCTTT SGIIV3 GTCGTGCTGGGACTG AGGCCCTACCAGACG GGCTCAGTGTTGAGG ATATTTTAAATCTTT GICGIGCIGGGACIG AGGCCCIACCAGACG GGCICAGIGIIGAGG ATAITITAAAICITI SGII

1381

TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTCCCCA ATCCATATAACCAGG TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTTCCCA ATCCATATAACCAGG TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTTCCCA ATCCATATAACCAGG TAGGGATGGAGAGTG CAGCAAATCAGAAAA CGTCGTATTTTCCCA A-----SGIIV1 SGIIV2 SGIIN3

FIG.4M

	1441			1500
SGIIV1	SGIIV1 AGAAAGTTCTGCCAA	GGCTCCCTTATGGTG	GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA	cgaaccagctrcca
SGIIV2	SGIIV2 AGAAAGTTCTGCCAA	GGCTCCCTTATGGTG	GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA	CGAACCAGCTTCCCA
SGIIV3				
SGII	AGAAAGTTCTGCCA!	A GCTCCCTTATGGT	CTGGAAGATCTAGAT	AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA
	1501			1560
SGIIVI	SGIIV1 AAGCTGCCTGGATTC	CACATGTTGAAAACA	CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA	AAAACCTGAACGACA
SGIIV2	SGIIV2 AAGCTGCCTGGATTC	CACATGTTGAAAACA	CACATGTTGAAAACA GACAGATGGCATATG AAAACCTGAACGACA	AAAACCTGAACGACA
SGIIV3				
SGII	AAGCTGCCTGGATTC	CACATGTTGAAAACA	CACATGTTGAAAACA GACAGATGGCÄTATG AAAACCTGAACGACA	AAAACCTGAACGACA

FIG.4N

ATTCAAACCAAGTGA AGCGAGTTCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG	AAGGCTCATCTGAAG	AGCGAGTTCCTGGTC	ATTCAAACCAAGTGA	1155
				SGIIV3
ATGACCTGCAGGAAG	AAGGCTCATCTGAAG	AGCGAGTTCCTGGTC	SGIIV2 ATTCAAACCAAGTGA AGCGAGTTCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG	SGIIV2
ATTCAAACCAAGTGA AGCGAGTTCCTGGTC AAGGCTCATCTGAAG ATGACCTGCAGGAAG	AAGGCTCATCTGAAG	AGCGAGTTCCTGGTC	ATTCAAACCAAGTGA	SGIIV1
1680			1621	
GIGAGTACTIGGCCA GGAIGCIAGITAAAI ACCCIGAGAICAITA	GGATGCTAGTTAAAT	GTGAGTACTTGGCCA	AGGATCAAGAATTAG	SGII
				SGIIV3
SGIIV2 AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATTA	GGATGCTAGTTAAAT	GTGAGTACTTGGCCA	AGGATCAAGAATTAG	SGIIV2
SGIIV1 AGGATCAAGAATTAG GTGAGTACTTGGCCA GGATGCTAGTTAAAT ACCCTGAGATCATTA	GGATGCTAGTTAAAT	GTGAGTACTTGGCCA	AGGATCAAGAATTAG	SGIIV1
1620			1561	

TGAGCAAAAGGTTCC CTGTGGGGCCCCCGA AGAATGATGATACCC	CTGTGGGGCCCCCGA	TGAGCAAAAGGTTCC	ACAAGCTGGCCCCGG	SGII
				SGIIV3
AGAATGATGATACCC	CIGIGGGCCCCCGA	TGAGCAAAAGGTTCC	SGIIV2 ACAAGCTGGCCCCGG TGAGCAAAAGGTTCC CTGTGGGGCCCCCGA AGAATGATAATCC	SGIIV2
AGAATGATGATACCC	CTGTGGGGCCCCCGA	TGAGCAAAAGGTTCC	SGIIVI ACAAGCTGGCCCCGG TGAGCAAAAGGTTCC CTGTGGGGCCCCCGA AGAATGATGATACCC	SGIIVI
1800			1741	
	·			
AGGAACAAATTGAGC AGGCCATCAAAGAGC ATTTGAATCAAGGCA GCTCTCAGGAGACTG	ATTTGAATCAAGGCA	AGGCCATCAAAGAGC	AGGAACAAATTGAGC	SGII
				SGIIV3
GCTCTCAGGAGACTG	ATTTGAATCAAGGCA	AGGCCATCAAAGAGC	SGIIV2 AGGAACAAATTGAGC AGGCCATCAAAGAGC ATTTGAATCAAGGCA GCTCTCAGGAGACTG	SGIIV2
GCTCTCAGGAGACTG	ATTTGAATCAAGGCA	AGGCCATCAAAGAGC	SGIIV1 AGGAACAAATTGAGC AGGCCATCAAAGAGC ATTTGAATCAAGGCA GCTCTCAGGAGACTG	SGIIV1
0.5/T			1681	

AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG	CTAAGAGAGCAATGG	GAAGGGAGCATATTG	AAAAGGCAGAAAAGG	SGII
			} !	SGIIV3
AAAATATGTAAGCTG	CTAAGAGAGCAATGG	GAAGGGAGCATATTG	SGIIV2 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG	SGIIV2
AAAATATGTAAGCTG	CTAAGAGAGCAATGG	GAAGGGAGCATATTG	SGIIV1 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG	SGIIVI
1920	:		1861	
CAAATAGGCAGTACT GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG	TAATGAAAGTGCTGG	GGGATGAAGATCTGT	CAAATAGGCAGTACT	SGII
				SGI I A 3
TAATGAAAGTGCTGG AATACCTCAATCAAG		GGGATGAAGATCTGT	SGIIV2 CAAATAGGCAGTACT	SGIIV2
GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG	TAATGAAAGTGCTGG	GGGATGAAGATCTGT	CAAATAGGCAGTACT	SGIIV1
1860			1801	

FIG.4(

CCCAACATTTCTCTT	CTACTTTCATTCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT	CTACTTTCATTCCTC	CTTTCATTAATTACC	SGII
CCCAACATTICICIT	GCAAAT CCCAACATTTCTCTT			SGIIV3
CCCAACATTTCTCTT	CTACTTTCATTCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT	CTACTTTCATTCCTC	CTTTCATTAATTACC	SGIIV2
CCCAACATTTCTCTT	C CTACTTTCATTCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT	CTACTTTCATTCCTC	CTTTCATTAATTAC	SGIIVI
1980			1921	

2040 CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT SGIIV3 CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT SGIIV1 CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT SGIIV2 CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT 1981 SGII

FIG.4R

2100 SGIIV1 GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT SGIIV3 GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT GAAACCAGGTCACTG GGGAGTCTGCTTCAT TTCCTCTGAGCTGTT ATCTTGTGTATGGAT 2041 SGIIV2 SGII

2160 SGIIV1 ATGTGTAAATGTTAT GACTCCTTGATAAA AATTTATTATGTCCA TTATTCAAGAAGAT SGIIV2 ATGTGTAAATGTTAT GACTCCTTGATAAA AATTTATTATGTCCA TTATTCAAGAAGAT SGIIV3 ATGTGTAAATGTTAT GACTCCTTGATAAA AATTTATTATGTCCA TTATTCAAGAT AIGTGIAAAIGTIAI GACTCCTIGATAAA AATTTATTATGTCCA TTATTCAAGAAGAI 2100

2280

FIG.4S

2161

2220

SGIIV1 ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG SGIIV2 ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG SGIIV3 ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG ATCTATGACTGTGTT TAATAGTATATCTAA TGGCTGTGGCATTGT TGATGCTCACATATG SGII

-

SGIIV3 ATAAAAAAGTGTCCT ATAATTCTATTGAAA GTTTTTAATATTTTAT TGAATTATTTGTTA SGIIVI ATAAAAAAGTGTCCT ATAATTCTATTGAAA GTTTTTAATATTTAT TGAATTATTTTGTTA SGIIV2 ATAAAAAGTGTCCT ATAATTCTATTGAAA GTTTTTAATATTTAT TGAATTATTTTGTTA ATAAAAAAGTGTCCT ATAATTCTATTGAAA GTTTTTAATATTTAT TGAATTATTTTGTTA SGII

2281

SGII

SEEDWMRIILEALRO	YIENLROOAHKEESS PDYNPYOGVSVPLOO KENGDESHLPERDSL SEEDWMRIILEALRO	PDYNPYOGVSVPLOO	YIENLROOAHKEESS	SGII
SEEDWMRIILEALRO	KENGDESHLPERDSL	PDYNPYQGVSVPLQQ	SGIIV3 YIENLRQQAHKEESS PDYNPYQGVSVPLQQ KENGDESHLPERDSL SEEDWMRIILEALRQ	SGIIV3
			SGIIV2 YIENLRQQAHK	SGIIV2
			YIEN	SGIIV1 YIEN-
120			61	
NVQKFPSPEMIRALE	IPLIFLISGAEAASF QRNQLLQKEPDLRLE NVQKFPSPEMIRALE		MAEAKTHWLGAALSL	SGII
NVQKFPSPEMIRALE	IPLIFLISGAEAASF QRNQLLQKEPDLRLE NVQKFPSPEMIRALE		SGIIV3 MAEAKTHWLGAALSL	SGIIV3
NVQKFPSPEMIRALE	IPLIFLISGAEAASF QRNQLLQKEPDLRLE NVQKFPSPEMIRALE		SGIIV2 MAEAKTHWLGAALSL	SGIIV2
IPLIFLISGAEAASF QRNQLLQKEPDLRLE NVQKFPSPEMIRALE	QRNQLLQKEPDLRLE	IPLIFLISGAEAASF	SGIIV1 MAEAKTHWLGAALSL	SGIIV1
09				

	121			, 180
SGIIV1				PFK
SGIIV2				
SGIIV3	SGIIV3 AENEPQSAPKENKPY	ALNSEKNFPMDMSDD	ALNSEKNFPMDMSDD YETQQWPERKLKHMQ FPPMYEENSRDNPFK	FPPMYEENSRDNPFK
SGII	AENEPOSAPKENKPY	AENEPQSAPKENKPY ALNSEKNFPMDMSDD	YETQQWPERKLKHMQ FPPMYEENSRDNPFK	FPPMYEENSRDNPFK
	181			240
SGIIV1	RTNEIVEEQYTPQSL	ATLESVFQELGKLTG	ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDEDDIYKANNIA	YTDDEDDIYKANNIA
SGIIV2				
SGIIV3	RTNEIVEEQYTPQSL	ATLESVFQELGKLTG	ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDEDDIYKANNIA	YTDDEDDIYKANNIA
SGII	RTNEIVEEQYTPQSL	ATLESVFQELGKLTG	ATLESVFQELGKLTG PNNQKRERMDEËQKL	YTDDEDDİYKANNIA

	241			300
SGIIV1	YEDVVGGEDWNPVEE		NIGKNEQINDEMKRS	KIESQTQEEVRDSKE NIGKNEQINDEMKRS GQLGIQEEDLRKESK
SGIIV2				
SGIIV3	SGIIV3 YEDVVGGEDWNPVEE	KIESQTQEEVRDSKE	KIESQTQEEVRDSKE NIGKNEQINDEMKRS GQLGIQEEDLRKESK	GOLGIQEEDLRKESK
SGII	YEDVVGGEDWNPVEE	E KIESQTQEEVRDSKE NIGKNEQINDEMKRS GQLGIQEEDLRKESK	NIGKNEQINDEMKRS	GQLGIQEEDLRKESK
	301			3.60
SGIIVI	DOLSDDVSKVIAYLK	RLVNAAGSGRLQNGQ	RLVNAAGSGRLQNGQ NGERATRLFEKPLDS QSIYQLIEISRNLQI	QSIYQLIEISRNEQI
SGIIV2				
SGIIV3	SGIIV3 DQLSDDVSKVIAYLK	RLVNAAGSGRLQNGQ NGERATRLFEKPLDS QSIYQLIEISRNLQI	NGERATRLFEKPLDS	QSIYQLIEISRNLQI
IISS	DQLSDDVSKVIAYLK	DQLSDDVSKVIAYLK RLVNAAGSGRLQNGQ NGERATRLFEKPLDS QSIYQLIEISRNLQI	NGERATRLFEKPLDS	QSIYQLIEISRNLQI

	361			, 420
SGIIVI	SGIIVI PPEDLIEMLKTGEKP	NGSVEPERELDLPVD	NGSVEPERELDLPVD LDDISEADLDHPDLF QNRMLSKSGYPKTPG	QNRMLSKSGYPKTPG
SGIIV2				
SGIIV3	SGIIV3 PPEDLIEMLKTGEKP	NGSVEPERELDLPVD	NGSVEPERELDLPVD LDDISEADLDHPDLF QNRMLSKSGYPKTPG	ONRMLSKSGYPKTPG
SGII	PPEDLIEMLKTGEKP	NGSVEPERELDLPVD	NGSVEPERELDLPVD LDDISEADLDHPDLF QNRMLSKSGYPKTPG	QNRMLSKSGYPKTPG
			7	
	421			480
SGIIV1	SGIIV1 RAGTEALPDGLSVED	ILNLLGMESAANOKT	SYFPNPYNQEKVLPR LPYGAGRSRSNQLPK	LPYGAGRSRSNQLPK
SGIIV2				
SGIIV3	SGIIV3 RAGTEALPDGLSVED	ILNLLGMESAANQKT	SYFP	
SGIİ	RAGTEALPDGLSVED	ILNLLGMESAANOKT	ILNLLGMESAANOKT SYFPNPYNQEKVLPR LPYGAGRSRSNQLPK	LPYGAGRSRSNQLPK

	481			. 540
SGIIV1	SGIIV1 AAWIPHVENROMAYE	NLNDKDQELGEYLAR	NLNDKDQELGEYLAR MLVKYPEIINSNQVK RVPGQGSSEDDLQEE	RVPGQGSSEDDLQEE
SGI IV2				
SGIIV3				
SGII	AAWI PHVENROMAYE	NLNDKDQELGEYLAR	NLNDKDQELGEYLAR MLVKYPEIINSNQVK RVPGQGSSEDDLQEE	RVPGQGSSEDDLQEE
	541			009
SGIIV1	EQIEQAIKEHLNQGS	SQETDKLAPVSKRFP	SQETDKLAPVSKRFP VGPPKNDDTPNRQYW	DEDLIMKVLEYLNQE
SGIIV2				
SGIIV3				
SGII	EQIEQAIKEHLNQGS	SQETDKLAPVSKRFP	SQETDKLAPVSKRFP VGPPKNDDTPNRQYW	DEDLLMKVLEYLNQE

601

504	86	472	617
WN	KESLSTCNSLLC MKRIPGITPLNAQMK-	KQIPTFLFSVLTS ILLTL	NM 617
KAEKGREHIAKRAME NM			KAEKGREHIAKRAME NM
SGIIV1	SGIIV2	SGIIV3	3611